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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

KORNAKOV, MICHAIL

ART UNIT	PAPER NUMBER
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1746

DATE MAILED: 09/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/786,118

Applicant(s)

CHAO ET AL.

Examiner

Michael Kornakov

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 26 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 February 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities:
 - page 1, line 24 refers to Fig., however the Fig. number is not provided and therefore appropriate correction is required;
 - page 4, line 16 recites Fig. 4. Apparently, Fig. 1 should be indicated, however, appropriate clarification and/or correction is required.
 - the disclosure, page 6, lines 2-11, recites the use of pressurization gas and purging gas. It is not clear whether the same or different gases are used for purging and pressurization. The same paragraph of the disclosure recites entering the pressurization gas into the system, which, apparently, is not shown on drawings.
 - page 7, line 1 recites that "the purging agent is a liquid", however the previous page recites that gas is utilized for purging and therefore, appropriate clarification is required.

Drawings

2. The drawings, Fig. 2, are objected to under 37 CFR 1.83(a) because they fail to show connection line between MV1 valve and the purge gas line as provided in the specification. Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d).
3. The drawings must show every feature of the invention specified in the claims. Therefore, the pressurization line for introducing pressurization gas into the system

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must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

4. Claim 7 is objected to because of the following informalities: claim 7 recites "the purging agent". Apparently, the cleaning agent should be indicated. Appropriate clarification/correction is required.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claims 3, 6 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Claim 3 recites introducing a purge gas into the system at the same time of introducing the high purity and highly volatile cleaning agent, which apparently is not provided by the instant disclosure and therefore one skilled in the art would not be able to make and/or use the instant invention without undue experimentation. Claim 6 is rejected because of its dependency and failure to remove the ambiguity of parent claim.

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 1, 2-6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention.
9. Claims 2, 3 recite the introduction of purge gas into the system. Claims 4-6 recite the introduction of pressurization gas into the system. It is not clear what is regarded as the purge gas and the pressurization gas, whether the same or different gases are

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indicated and whether the same or different lines are used for the introducing of these gases into the system.

10. Claim 7 recites the limitation "**the purging agent**". There is insufficient antecedent basis for this limitation in the claim.

11. Claim 1 recites the limitation "**the optional** section". There is insufficient antecedent basis for this limitation in the claim.

12. Claim 1 recites the step of "**opening** one of the multiple sections of tubes in the system", which constitutes an indefinite subject matter, because it unclear what Applicants regard as "opening ...of tubes". The instant disclosure does not provide any clarification regarding this term and states that a storage container accommodating a cleaning agent with high purity and highly volatile properties is connected to the system to introduce the cleaning agent into the system (page 5, lines 7-9) through the combination of valves (page 6). Therefore, appropriate clarification is required. For examination purposes the step of opening one of the multiple sections of tubes is interpreted as providing the source of cleaning agent and introducing the cleaning agent into the tube(s) of the semiconductor manufacturing system.

Claim Rejections - 35 USC § 102

13. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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14. Claims 1, 2, 4, 5, 7 rejected under 35 U.S.C. 102(b) as being anticipated by Gomi et al (U.S. 5,730,804).

Gomi teaches a process for cleaning a pipeline of CVD film forming device. The process of Gomi includes connecting a source of highly volatile cleaning solvent, such as hexane, toluene, benzene, etc., to the pipe(s) to be cleaned, introducing the cleaning solvent into the pipe(s), washing the pipe(s) with cleaning solvent and eliminating the cleaning solvent from the pipe by a negative pressure, thus drying the pipe. Before introducing the cleaning solvent a purge gas, such as argon or hydrogen, is introduced into the pipe(s) to be cleaned. A pressurization gas, such as argon, is introduced into the pipe(s) after introducing a cleaning solvent (Abstract, col. 8-12). Therefore, all the limitations of the instant claims are met by Gomi.

Claim Rejections - 35 USC § 103

15. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

16. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

17. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

18. Claims 3, 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gomi et al (U.S. 5,730,804).

While teaching the introducing of cleaning solvent into the piping under cleaning Gomi remains silent about introducing a purge gas into the piping at the same time of introducing the cleaning solvent. However, one skilled in the art would have found obvious to flow the purge gas through the piping with cleaning solvent in order to agitate the cleaning fluid, thus enhancing the cleaning of pipe(s) in the teaching of Gomi.

19. Claims 8, 9, 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gomi et al (U.S. 5,730,804) and in view of Kimura et al (U.S. 5,676,762).

Gomi does not specifically indicate the use of nitrogen as the purge gas. However, the gases such as nitrogen, argon, helium, hydrogen are conventionally utilized in the art for purging gas supplying systems after wet cleaning. Thus, Kimura teaches purging gas

distribution network with an inert gas such as nitrogen, argon, helium or with a reductive gas such as hydrogen, after the wet cleaning and liquid drying steps have been completed (col.7, lines 11-12), thus recognizing equivalency between the recited purging methods. However, substitution of equivalent methods requires no express motivation, as long as the prior art recognizes equivalency, ***In re Fount*** 213 USPQ 532 (CCPA 1982); ***In re Siebentritt*** 152 USPQ 618 (CCPA 1967); ***Graver Tank & Mfg. Co. Inc. V. Linde Air products Co.*** 85 USPQ 328 (USSC 1950).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Kornakov whose telephone number is (571) 272-1303. The examiner can normally be reached on 9:00am - 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Barr can be reached on (571) 272-1414. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Michael Kornakov

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M. KERNAN

Primary Examiner
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08/26/2005